

WHAT IS CLAIMED IS:

1 1. A use of a photocurable preceramic polymer to fabricate
2 a silicon carbide containing ceramic or ceramic composite
3 for the application of diesel particulate filters.
4

5 2. A use of a photocurable preceramic polymer to fabricate
6 a silicon carbide containing ceramic or ceramic composite
7 which is microwave susceptible.
8

9 3. A use of a photocurable preceramic polymer to fabricate
10 a microwave susceptible silicon carbide containing ceramic
11 or ceramic composite for the application of regenerative
12 diesel particulate filters.
13

14 4. A use of a photocurable preceramic polymer to fabricate
15 a microwave susceptible silicon carbide containing ceramic
16 or ceramic composite for the application of regenerative
17 diesel particulate filters composed of matted ceramic

1 fibrils shaped in a corrugated cylindrical geometry.

2

3 5. A use of a photocurable preceramic polymer to fabricate
4 a microwave susceptible silicon carbide containing ceramic
5 or ceramic composite for the application of regenerative
6 diesel particulate filters composed of matted ceramic
7 fibrils shaped in a conical geometry.

8

9 6. A use of a photocurable preceramic polymer to fabricate
10 a silicon carbide containing ceramic or ceramic composite
11 for the applications of radiant burners, thermal oxidizers
12 of volatile organic compounds, filters, and automotive
13 catalytic converters.

14

15 7. A use of a photocurable preceramic polymer to fabricate
16 a boron carbide containing ceramic or ceramic composite for
17 the application of diesel particulate filters.

18

1 8. A use of a photocurable preceramic polymer to fabricate
2 a boron carbide containing ceramic or ceramic composite
3 which is microwave susceptible.
4

5 9. The use of a photocurable preceramic polymer to
6 fabricate a microwave susceptible boron carbide containing
7 ceramic or ceramic composite for the application of
8 regenerative diesel particulate filters.
9

10 10. A use of a photocurable preceramic polymer to fabricate
11 a microwave susceptible boron carbide containing ceramic or
12 ceramic composite for the application of regenerative diesel
13 particulate filters composed of matted ceramic fibrils
14 shaped in a corrugated cylindrical geometry.
15

16 11. The use of a photocurable preceramic polymer to
17 fabricate a microwave susceptible boron carbide containing
18 ceramic or ceramic composite for the application of

1 regenerative diesel particulate filters composed of matted
2 ceramic fibrils shaped in a conical geometry.

3

4 12. A use of a photocurable preceramic polymer to fabricate
5 a boron carbide containing ceramic or ceramic composite for
6 the applications of radiant burners, thermal oxidizers of
7 volatile organic compounds, filters, and automotive
8 catalytic converters.

9

10 13. A use of a photocurable preceramic polymer to fabricate
11 a lithium aluminosilicate containing ceramic or ceramic
12 composite for the application of diesel particulate filters.

13

14 14. A use of a photocurable preceramic polymer to fabricate
15 a lithium aluminosilicate containing ceramic or ceramic
16 composite which is microwave susceptible.

17

18 15. A use of a photocurable preceramic polymer to fabricate

1 a microwave susceptible lithium aluminosilicate containing
2 ceramic or ceramic composite for the application of
3 regenerative diesel particulate filters.
4

5 16. A use of a photocurable preceramic polymer to fabricate
6 a microwave susceptible lithium aluminosilicate containing
7 ceramic or ceramic composite for the application of
8 regenerative diesel particulate filters composed of matted
9 ceramic fibrils shaped in a corrugated cylindrical geometry.
10

11 17. The use of a photocurable preceramic polymer to
12 fabricate a microwave susceptible lithium aluminosilicate
13 containing ceramic or ceramic composite for the application
14 of regenerative diesel particulate filters composed of
15 matted ceramic fibrils shaped in a conical geometry.
16

17 18. A use of a photocurable preceramic polymer to fabricate
18 lithium aluminosilicate containing ceramic or ceramic

1 composite for the applications of radiant burners, thermal
2 oxidizers of volatile organic compounds (VOCs), filters, and
3 automotive catalytic converters..
4

5 19. A use of a photocurable preceramic polymer to fabricate
6 a silicon nitride containing ceramic or ceramic composite
7 for the application of diesel particulate filters.
8

9 20. A use of a photocurable preceramic polymer to
10 fabricate a silicon nitride containing ceramic or ceramic
11 composite which is microwave susceptible.
12

13 21. The use of a photocurable preceramic polymer to
14 fabricate a microwave susceptible silicon nitride containing
15 ceramic or ceramic composite for the application of
16 regenerative diesel particulate filters.
17

18 22. A use of a photocurable preceramic polymer to fabricate

1 a microwave susceptible silicon nitride containing ceramic
2 or ceramic composite for the application of regenerative
3 diesel particulate filters composed of matted ceramic
4 fibrils shaped in a corrugated cylindrical geometry.
5

6 23. A use of a photocurable preceramic polymer to fabricate
7 a microwave susceptible silicon nitride containing ceramic
8 or ceramic composite for the application of regenerative
9 diesel particulate filters composed of matted ceramic
10 fibrils shaped in a conical geometry.
11

12 24. A use of a photocurable preceramic polymer to fabricate
13 a silicon nitride containing ceramic or ceramic composite
14 for the applications of radiant burners, thermal oxidizers
15 of volatile organic compounds (VOCs), filters, and
16 automotive catalytic converters.
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18 25. A use of a preceramic polymer to fabricate a silicon

1 carbide containing ceramic or ceramic composite for the
2 application of diesel particulate filters.

3

4 26. A use of a preceramic polymer to fabricate a silicon
5 carbide containing ceramic or ceramic composite which is
6 microwave susceptible.

7

8 27. A use of a preceramic polymer to fabricate a microwave
9 susceptible silicon carbide containing ceramic or ceramic
10 composite for the application of regenerative diesel
11 particulate filters.

12

13 28. A use of a preceramic polymer to fabricate a microwave
14 susceptible silicon carbide containing ceramic or ceramic
15 composite for the application of regenerative diesel
16 particulate filters composed of matted ceramic fibrils
17 shaped in a corrugated cylindrical geometry.

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1 29. The use of a preceramic polymer to fabricate a
2 microwave susceptible silicon carbide containing ceramic or
3 ceramic composite for the application of regenerative diesel
4 particulate filters composed of matted ceramic fibrils
5 shaped in a conical geometry.

6
7 30. A use of a preceramic polymer to fabricate a silicon
8 carbide containing ceramic or ceramic composite for the
9 applications of radiant burners, thermal oxidizers of
10 volatile organic compounds, filters, and automotive
11 catalytic converters.

12
13 31. A use of a preceramic polymer to fabricate a boron
14 carbide containing ceramic or ceramic composite for the
15 application of diesel particulate filters.

16
17 32. A use of a preceramic polymer to fabricate a boron
18 carbide containing ceramic or ceramic composite which is

1 microwave susceptible.

2

3 33. A use of a preceramic polymer to fabricate a microwave
4 susceptible boron carbide containing ceramic or ceramic
5 composite for the application of regenerative diesel
6 particulate filters.

7

8 34. A use of a preceramic polymer to fabricate a microwave
9 susceptible boron carbide containing ceramic or ceramic
10 composite for the application of regenerative diesel
11 particulate filters composed of matted ceramic fibrils
12 shaped in a corrugated cylindrical geometry.

13

14 35. A use of a preceramic polymer to fabricate a microwave
15 susceptible boron carbide containing ceramic or ceramic
16 composite for the application of regenerative diesel
17 particulate filters composed of matted ceramic fibrils
18 shaped in a conical geometry.

1 36. A use of a preceramic polymer to fabricate a boron
2 carbide containing ceramic or ceramic composite for the
3 applications of radiant burners, thermal oxidizers of
4 volatile organic compounds, filters, and automotive
5 catalytic converters.

6

7 37. A use of a preceramic polymer to fabricate a lithium
8 aluminosilicate containing ceramic or ceramic composite for
9 the application of diesel particulate filters.

10

11 38. A use of a preceramic polymer to fabricate a lithium
12 aluminosilicate containing ceramic or ceramic composite
13 which is microwave susceptible.

14

15 39. A use of a preceramic polymer to fabricate a microwave
16 susceptible lithium aluminosilicate containing ceramic or
17 ceramic composite for the application of regenerative diesel
18 particulate filters.

- 1 ~~40.~~ A use of a preceramic polymer to fabricate a microwave
2 susceptible lithium aluminosilicate containing ceramic or
3 ceramic composite for the application of regenerative diesel
4 particulate filters composed of matted ceramic fibrils
5 shaped in a corrugated cylindrical geometry.
- 6 ~~41.~~ A use of a preceramic polymer to fabricate a microwave
7 susceptible lithium aluminosilicate containing ceramic or
8 ceramic composite for the application of regenerative diesel
9 particulate filters composed of matted ceramic fibrils
10 shaped in a conical geometry.
- 11
- 12 ~~42.~~ A use of a preceramic polymer to fabricate a lithium
13 aluminosilicate containing ceramic or ceramic composite for
14 the applications of radiant burners, thermal oxidizers of
15 volatile organic compounds, filters, and automotive
16 catalytic converters.
- 17
- 18 ~~43.~~ A use of a preceramic polymer to fabricate a silicon

1 nitride containing ceramic or ceramic composite for the
2 application of diesel particulate filters.

3

4 ~~44.~~ A use of a preceramic polymer to fabricate a silicon
5 nitride containing ceramic or ceramic composite which is
6 microwave susceptible.

7

8 ~~45.~~ A use of a preceramic polymer to fabricate a microwave
9 susceptible silicon nitride containing ceramic or ceramic
10 composite for the application of regenerative diesel
11 particulate filters.

12

13 ~~46.~~ A use of a preceramic polymer to fabricate a microwave
14 susceptible silicon nitride containing ceramic or ceramic
15 composite for the application of regenerative diesel
16 particulate filters composed of matted ceramic fibrils
17 shaped in a corrugated cylindrical geometry.

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1 47. A use of a preceramic polymer to fabricate a microwave
2 susceptible silicon nitride containing ceramic or ceramic
3 composite for the application of regenerative diesel
4 particulate filters composed of matted ceramic fibrils
5 shaped in a conical geometry.

6
7 48. A use of a preceramic polymer to fabricate a silicon
8 nitride containing ceramic or ceramic composite for the
9 applications of radiant burners, thermal oxidizers of
10 volatile organic compounds, filters, and automotive
11 catalytic converters.

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13 49. A process of forming a photo-curable pre-ceramic
14 polymer, poly(ethynyl)-carbosilane to silicon carbide
15 ceramic comprising the steps of:
16 a. reacting sodium acetylide with organo-chlorosilanes;
17 and
18 b. condensing (polymerizing) the resultant organo-

1 (ethynyl)chlorosilane product of step a with an excess
2 of an alkali metal.